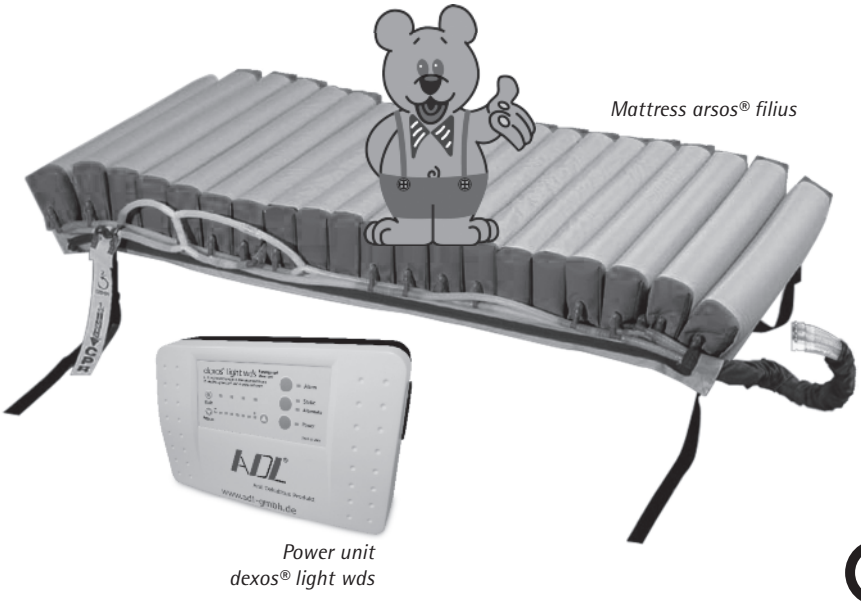
User Manual arsos® filius

+ dexos® light wds

Item No. 111 510-DL-wds

Ulcer Pressure Relief System

Assembly and Operation instructions



Mattress arsos® filius

Power unit
dexos® light wds

CE

pressure relief products

Health. Security. Independence.

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Foreword

Dear client!
You are now holding the user manual of the **arsos® filius** therapeutic support system of **ADL® GmbH** in your hands.

arsos® filius is a mattress replacement system, divided into three segments, with 28 (20) independent removable air foam cells.
This air foam technology enables the mattress by means of air support to adjust itself to the weight and convenience of the patient.
The functions are based upon known mechanisms. The system is equipped with a soft foam mattress with reinforced edges. Further **arsos® filius** is a dynamic or - when needed - static air filled mattress with an 11,5 cm safety foam layer which prevents the patient to sink to the bed base level in case of a system disorder.

When changing treatment of the patient, the foam mattress can be converted into a dynamic system through connecting the mattress to different control power units (e.g. **dexos® light wds or dexos® autoplus**).
The composition of the system can be considered a system in a system making adaptations possible to suit a wide variety of diseases.
This module concept also combines more advantages concerning the safety aspects as the protection of the bed side rails when large cell systems are being used. Higher bed side rails, which head-contain again safety problems by falling heights, do not become any longer necessarily, as the employment of the **arsos® filius** mattress, offer appropriate defaults that are kept in accordance with DIN EN 1970-2000 and DIN EN 60601-2-38.

With the writing of this user manual the product management of the **ADL® GmbH** has set itself the goal, to create a good and understandable aid and guidance for the employment of the system. If nevertheless questions remain, please ask your provider for direction and assistance.

Your
ADL® GmbH

1 Safety Instructions

The system may not be used in presence of open flames, heaters a.o's. Protect the system against humidity. Operate it only in dry areas. No combustible gasses of liquids may enter into the system.

EXPLOSION DANGER!

Warning! Note! The compressor is under power, as soon as the power supply plug is put in. Before opening the housing of the compressor the power plug is to be unplugged. Repairs must be performed only by qualified personnel. The compressor may only to be used for it's purpose. In case of damage to the compressor, the power supply plug must be unplugged immediately. A damaged power supply cord should be replaced immediately. Only room temperatures of 0 – 35 °C provide assurance to good compressor operation. The use of a pressure relieving mattress will not eliminate the need for a turning routine for the patient. Do not remove (except for repairs) any cells from the system.

When applicable, batteries and accumulators should be disposed on a proper way. These materials are not suitable to be disposed with normal (house)garbage.

2 Product overview arsos® filius + dexos® light wds

Units	Parts list	Item No.
1	Mattress with 28 (20) Cell tubes, 6 fixation straps and bi-elastic washable PU-cover	111 510-DL-wds
1	dexos® light wds, power unit, incl. power cord	
1	Service manual	999 190
1	User Manual arsos® filius + dexos® light wds	112 002-GB
	Spare PU cover	111 512
	Spare cell	111 513
	Spare power unit dexos® light wds, incl. power cord	111 203-DL-wds

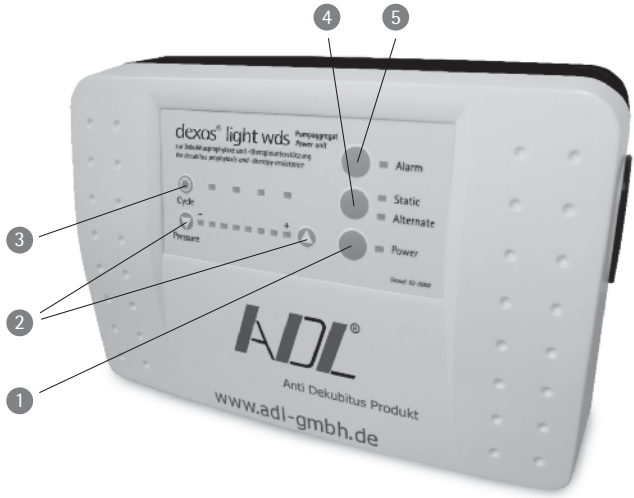
3 Introduction

arsos® filius + dexos® light wds is an air mattress system, meaning that no extra treatment nursing mattress is required. This system is suitable for patients with a body weigth from **20 – 100 kg**.

Please note that these weight indications are applicable for patients in a laying position. Other positions will result in another distribution of weight.
The core of soft foam will ensure adaptation to the shape of the human body which results in an as large as possible surface and maximum pressure relaxation. The reinforcements of the foam edges are an advantage for the sense of feeling and the mobility of the patient. Touching the bed base is prevented by the 11,5 cm foam core in the cell of the **arsos® filius**-modules.

This also helps to ensure compliance and conformity to **DIN EN 1970:2000** and **DIN EN 60601-2-38** because even with full air pressure in the cells the safety function of the bed rails remains unchanged.

4 Explanation of indications and functions



1. On/off switch (Power)
2. Pressure setting (Pressure)
   - ▲ higher
   - ▼ lower
3. Cycle time (Cycle)
4. Mode (Static/Alternate)
5. Alarm button (Alarm)

5 Installation arsos® filius

1. Remove the existing nursing mattress.
2. Position the arsos® filius on the bed base frame and fix fixation straps to the bed. (to the "up and down" moving parts of the bed). If not properly attached to the bed can result in damage to the bed and mattress.
3. Place the mattress in such a way that the tubing's are located at the foot end of the bed.
4. Verify the CPR function is closed. CPR = Quick deflating function. In systems with a valve this should be in horizontal position; in systems with a plug closure, have all plugs put firmly in. The CPR is designed to deflate the mattress immediately.
5. The dual stretch and breathing cover is to be fixed to the bed base with the zipper on both sides.
6. Before putting the patient on the mattress you can fill air into the system with a hand pump. As this is a 3-chambers-system, there will be 3 tubes at the foot end.
7. After placing the patient on the mattress the power unit must be connected to the mattress.
8. Cover the mattress only with a cover normally used within nursing environments.

Only use covers which are properly sized and sufficiently elastic in order to prevent the "hammock effect" (see page 7). Creases in the sheets can be smoothed from time to time, but do not tuck the sheets underneath the mattress as the tension of the sheets can increase pressure.

6 Installation dexos® light wds

1. Before hanging the power unit at the foot end of the bed you have to mount the bracket at the back of the power unit. Slide the bracket from below up into the fixation slot. Hang the power unit at the foot end of the bed, but you can also put it under the bed. **Please note that the power unit should not be covered in any way, as thermal damage can occur!**
2. Connect the tubes to the power unit by connecting the tube connectors. The connector must give a clear clicking sound. Check with a short pull at the tube if the connecter is rightly adjusted.
   Please check rubber O-rings on regular intervals!

Connection scheme: arsos® filius mattress with power unit dexos® light wds

Group A = Cells pair 1/2, 7/8, 13/14, 19/20
Group B = Cells pair 3/4, 9/10, 15/16
Group C = Cells pair 5/6, 11/12, 17/18

3. Check if the tubes are not bent or clamped between other parts.
4. Put the power supply plug in and switch on the unit with the power button 1. When the lights at the display are lighting up, the unit is operational. The power unit is pre-adjusted so at the start a pressure is building up in the system right between the minimum and maximum level.
   The unit starts up in alternating mode with a 5 minute cycle.
5. The red alarm light 5 is flashing and the system will start to be filled with air. The red alarm light is put out of circuit when the process is completed.
6. After 15 -20 minutes the system is filled and you can put the patient on the mattress. The red alarm light should be put out of circuit when the patient is laying on the mattress. It has no meaning when the alarm now and then briefly flashes. When pressure drops below the set level, the red alarm light is blinking again for a long time. Together with the optic alarm, the power unit has an acoustic alarm. The acoustic sound can be switched off and on with the alarm button 5.

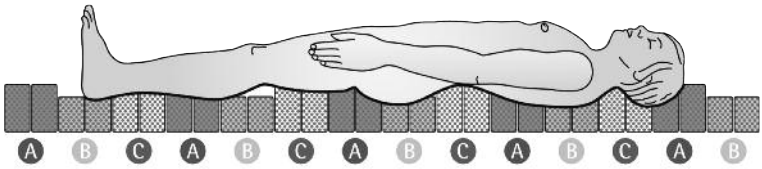
7. There are no standard settings. The most effective pressure level can be set with the pressure setting button.
The scale is divided into 8 parts. After the power unit is turned on, the standard pressure is set in the middle of the scale, about 30 mbar. Pressure can be lowered by repeated pressing on the left button 2 (▼ lower) to about 5 mbar. By repeated pressing on the right button 2 (▲ higher), a maximum pressure of 60 mbar can be set.
8. Try to reach an as large as possible contact surface. This will reduce the pressure at the patient's skin to a minimum. If you need an indication for a pre-adjustment you may use the following table:

Indication mbar pressure to body weight

No. of lights	pressure mbar	body weight
1 Blue light	5 – 13 mbar	ca. 10 – 15 kg
2 Blue lights	13 – 16 mbar	ca. 15 – 20 kg
3 Blue lights	16 – 19 mbar	ca. 20 – 30 kg
4 Blue lights	19 – 25 mbar	ca. 30 – 40 kg
5 Blue lights	25 – 35 mbar	ca. 40 – 50 kg
6 Blue lights	35 – 40 mbar	ca. 50 – 65 kg
7 Blue lights	40 – 45 mbar	ca. 65 – 80 kg
8 Blue lights	45 – 55 mbar	ca. > 80 kg*

The weight intervals only give a rough indication for pre-adjustment and check of the setting. It can never be an exact measure for the most effective contact area of the body. How far the body sinks into the mattress is not only determined by the weight, but also by length and shape. It is imperative to check the pre-adjustment with a "hand check". Try to move your hand under the knee-joint, the lumbar and neck lordosis in order to check if supporting material is present. When the patient sinks to far in the mattress the so called Hammock-effect occurs. This should be prevented at all times.

But it is imperative to check the pre-adjustment with a "hand check"!
Move your hand under the knee-joint, the lumbar and neck lordosis. In order to check if supporting material is present.
When the patient sinks too far in the mattress the so called "hammock-effect" occurs. This should be prevented at all times.
When pressure is to high there will be a lack of supporting material underneath the lumbar and cranial lordosis and the knee joints. The situation can be improved by pressing button 2 (▼ lower).
8. When pressure is too low (hammock effect), press button 2 (▲ higher).
Please note that status of the air cells is to be checked daily and whenever required adjustment is needed!
Each time when changing the pressure level you have to wait for the same time interval of the set cycle time, before the right level has been reached. Only after this you can check the contact area again.



A = Cell group A
B = Cell group B
C = Cell group C

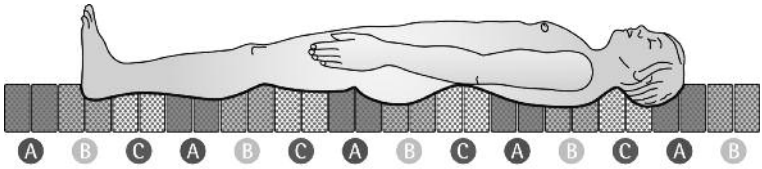
Principle of alternating pressure
(every second cells pair deflated; showing group B)

„Hammock effect" (to be avoided at any time)

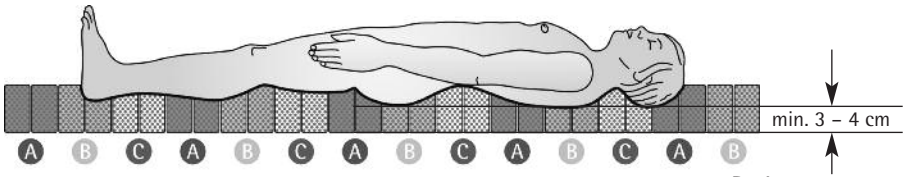
High extended pressure in the sacral area.

A = Cell group A B = Cell group B C = Cell group C

Optimal support of the patient
(Knee-joints, lumbar and cranial lordosis are supported)



A = Cell group A
B = Cell group B
C = Cell group C



A = Cell group A
B = Cell group B
C = Cell group C

Static pressure
(Every cell has equal pressure)

Patient may not sink to the base of the bed.

7 Other settings

Static

1. In case of a contra indication for alternating pressure the system can be switched to static mode by pressing button 4 (static/alternate). The light will change from blue to green (static).
In static mode all cells of the system will be filled with air to the set pressure level. **In static mode all cells are active; therefore it is necessary to reduce the set pressure with about 5-10 mbar (1 - 2 steps on the scale).**

To switch back to alternating mode, again press button 4 (static/alternate).
The light will change from green to blue (alternate).
In alternate mode 2 out of 3 cells are filled with air to the set pressure level.
One cell remains without pressure.
Don't forget to increase the pressure when switching over to alternating pressure with the same difference used to reduce, switching over to static mode.

Cycle time

2. The cycle time on the power unit can be varied from 5 to 20 minutes.
By pressing button 3 ("Cycle'), cycle time can be changed from standard 5 minutes with equal steps of 5 minutes to a maximum of 20 minutes.
Within one cycle all three cell groups are inflated and deflated once.

8 Auxiliary functions

1. Key lock
The keyboard has a key lock that is activated after about 5 minutes.

This is to prevent an unintentional displacement of the set values.
The key lock is released by simultaneous actuation of the following buttons: alarm 5 and pressure 2 - and pressure 2 +. After this the settings can be changed.

2. Brightness of the display
The brightness of the display can be set in 3 stages with the key combination alarm 4 and static/alternate 5 .
The starting situation is the brightest. By actuating the key combination it sets the display less bright.

3. Power failure alarm
When the power system to which the unit is connected fails, there is a power failure alarm. The unit beeps and the red alarm light flashes. The acoustic alarm can be disabled with the alarm 4 and power 1 button. When the power supply is restored, the alarm will also be disabled.

4. Memory function
The unit has a memory function. This means, when the power is interrupted, the unit will remember the set values up to about 24 hours.
Thus, after transfer of a patient, connecting to the power supply again and switching on the unit, is sufficient to continue with the same settings as before.

5. Reset function
By pressing the buttons alarm 2 and cycle 3 , the device can be put back to factory settings. All settings are lost. The factory settings are alternating pressure mode with pressure at 20 mbar, cycle time at 5 minutes, audible and visual alarm.

9 Cleaning instructions · Service

- During use the mattress and tubes should be cleaned weekly using a damp soft cloth and mild detergent or non-phenol germicidal solution.

Never use any detergents containing aldehyds!

- After changing to another patient the mattress should be disinfected by a accredited company approved by the **Robert-Koch-Institute**. Please ensure conformity to the European guideline for medical devices , directions for preparation of medicine products and directions for hospital hygiene and prevention of infections from the Robert-Koch-Institute or other guidelines they rule.
- The PU cover can be washed to a maximum temperature of **95° C** and be prepared after a thermal process (e.g. Ottalin - Peracet - process).
  When disinfecting the mattress, a maximum temperature of **75° C** should be kept.
  In case of an **arsos® filius**-Mattress with an alternating power unit, this should be cleaned with an damp cloth and soap detergent or a mild non- aldehyds cleaning detergent.
- Disinfection with cleaning on locations is also possible, when instruction for use and process time are properly followed.

Recommended disinfectants:
BACILLOCID RASANT (BODE), BACILLOL AF (BODE), BACILLOCID SPEZIAL (BODE), KOHRSOLIN FF (BODE), KOHRSOLIN (BODE), MICROBAC FORTE (BODE), DISMOZON PUR (BODE), INCIDIN FOAM (ECOLAB), INDUR DES (ECOLAB).

Check with your supplier that the disinfectant does not damage plastic surfaces (PUR, PA, ABS, PVC).

Prevent contact on electrical components with damp or moisture.
Cleaning cloths should be damp, not wet.
Carefully check no **moisture** remains in the system.
Execute a **functions control** procedure before using the system again.
Check your cleaning process on **effectiveness** on a regular basis.

ADL® GmbH prescribes safety-related revisals of all electric powered parts after at least 2 years.
The rules for accident prevention BGV A2 will remain unaffected.
The revisals may only be conducted by especially trained personal.

10 Troubleshooting

Module	Problem	Cause	Measure
arsos® filius	Mattress is not or insufficiently inflating.	Connectors are not accurately locked. Tubes are twisted or kinked.	Check connection and position of the tubes.
	The patient sinks to deep into the mattress.	Air cell defect. Tubing defect. Pressure not correctly set.	Check cells and tubing connections. Check if the tubings are properly functioning. Check if cells are in proper position. Check pressure setting.
dexos® light wds	The power unit does not operate (blue lamp at the switch is not illuminated).	No power available. Power supply plug defect, power cord defect, safety fuse defect.	Check power supply plug and partition socket. Check the safety fuse.
	Red alarm light is flashing and the acoustic alarm sounds	Defect air cell, defect tube, CPR valve open, connectors not properly connected	Check cells, tubes, CPR valve and connectors, check if pressure at the outlet of the power unit is within tolerance.

11 Indications · Contra indications

Function	Indication	Counter indication
Alternating pressure with dexos® light wds	Decubitus prevention and therapy support up till stage III (according to EPUAP), with High Risk (according to Braden), Patients with < 50 body weight	Instable fractures, loss of sensitivity, pain, muscular hypertonia, (e.g. contractions, spasms) pressure ulcers stage III - IV (according to EPUAP), Patients with < 10 kg and > 50 kg body weight
Static soft bedding with dexos® light wds	Pressure ulcers prevention and therapy support up to stage III (according to EPUAP), with high risk (according to Braden), Pain, muscular hypertonia	Instable fractures, loss of sensitivity, pressure ulcers stage III - IV (according to EPUAP), with High to Very High Risk (according to Braden), Patients with < 10 kg and > 50 kg body weight

12 Technical data

	Mattress arsos® filius	Pump dexos® light wds	Cover
Item No.	100 510-DL-wds	111 203-wds-new	111 542
Material	Polyurethane	ABS	PU/PA
Dimensions (cm)	140 x 90 x 11,5	23 x 15 x 8,5	200 x 95 x 12
Weight	ca. 16,3 kg	ca. 1,5 kg	ca. 0,2 kg
Warranty*	2 years	2 years	--
Electrical connections		230 V/7 W	
Protection class		II	
Fuse		230 V/500 mA slow	
Cleanng	Wipe disinfectable with adequate detergents	Wipe disinfectable	95 °C washable, dryer can be used to 50 °C

* Warranty only valid in case of production or material failures.

13 air foam combinations

Item No.	Description	dexos® light	dexos® autoplus	lenos® light
111 500	arsos® light stage I-II (up to 150 kg)	stage I - III	stage I - IV	stage I - IV
111 540	arsos® filius stage I-II (20 - 100 kg)	stage I - II	stage I - III	stage I - IV
111 550	arsos® plus stage I-II (up to 250 kg)	stage I - III	stage I - IV	stage I - IV
111 510	arsos® filius stage I-II (20 - 100 kg)	stage I - III	stage I - IV	stage I - IV

In case of technical problems please contact your appointed dealer or direct to ADL® GmbH.

(Dealer stamp)

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